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INSTRUMENT PANEL FOR AUTOMOTIVE VEHICLE THAT CAN BE TRANSFORMED INTO A
WORKSTATION
[PLANCHE DE BORD POUR VEHICULE AUTOMOBILE POUVANT ETRE TRANSFORMEE EN
POST D'ACTIVITE]

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The present invention concerns an instrument panel for an auto- /1*
motive vehicle that can be transformed into a workstation.

It is known that, in years to come, the automobile owner will spend more and more time in the vehicle due to the fact that traffic jams will become more common and the average travel distances will be increased.

Recent progress made in expressways called "intelligent," i.e., the type of expressways with automatic travel, automatic guidance in traffic jams, etc. will make it possible for vehicle drivers to carry out other activities in place of driving, for example writing, drawing, typing a text on a portable computer, viewing compact disks and other multimedia, sending letters by fax, photocopying and even watching a movie.

The technical problem that the invention attempts to resolve is to transform the classic instrument panel of an automotive vehicle into a workstation.

For this purpose, the invention proposes an instrument panel for automotive vehicles characterized in that it comprises, at the level of the driver's cockpit, on one hand, a storage space for at least one element such as a portable computer and on the other, the means to retract certain elements of the cockpit and extract the said element from its storage space in order to bring it into a usage position for the vehicle driver.

*Numbers in the margin indicate pagination in the foreign text.

Retractable elements of the cockpit are preferably the steering wheel and/or the instrument cluster.

Advantageously, the steering wheel comprises two parts that are hinge-mounted on each other so that they can be folded back against each other and; preferably, locking means are provided to lock the two in their folded-together position. /2

The storage space for the element mentioned above is located at the level of the lower half of the steering wheel, which has a lower half rim making up one of the two hinge-mounted parts that can be folded up against the upper half-rim that makes up the other hinge-mounted part.

The steering wheel and the steering column can be retracted into the instrument panel.

The instrument cluster retracts into the instrument panel, e.g., by pivoting.

The element mentioned above is advantageously combined with a sliding shelf that can be moved between a retracted position in the storage space and the usage position of the element.

The instrument panel also comprises additional equipment, such as a fax machine.

The movements of the different elements mentioned above are motorized and controlled using a single control element, such as a switch.

Preferably, a control motor is provided for each of the retraction movements of the instrument cluster, i.e., of the folding

of one part of the steering wheel up against the other, of the retraction of the steering wheel into the instrument panel and the extraction of the element such as a portable computer from its storage space.

The invention will be better understood and other goals, characteristics, details and advantages of it will appear more clearly in the explanatory description that will follow, with reference to the attached schematic drawings given solely by way of example illustrating one embodiment of the invention and in which:

- Figure 1 is a perspective view of an instrument panel according to the invention for an automotive vehicle;

- Figure 2 is a side view along arrow II in Fig. 1 of the instrument panel equipping the automotive vehicle; and

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- Figures 3 to 7 show the different steps that make it possible to transform the instrument panel into a workstation.

With reference to the figures, reference number 1 designates an instrument panel for an automotive vehicle comprising a steering wheel 2 with hub 3 connected to the upper end of the steering column 4.

The instrument panel also comprises the instrument cluster 5 with dials, indicators lights, etc., and different other elements that are already known, for example a radio receiver 6, a button 7 to turn on the vehicle emergency flashers, etc.

According to the invention, at the level of the cockpit, the instrument panel comprises a storage space 8 for at least one element 9, such as a portable computer. This storage space, located under the

steering column 4, may comprise one or two guiding rails that make it possible to slide the portable computer 9 from its storage space, as can be seen better in Figs. 3 to 7, the shelf 9a forming a part of the portable computer comprising especially the keyboard, the part forming the screen 9b being hinge-mounted on the shelf 9a by an articulating hinge in such way as to be able to pivot between a folded position on shelf 9a that allows the storage of computer 9 in the space 8 and the usage position of the computer.

The steering column 4, as well as the steering wheel 2, can be retracted into the instrument panel to a retracted position in which the steering wheel 2 will not cause any damage to the portable computer 9 when it is used by the driver. For this purpose, the steering column 4 comprises longitudinal ribs 10 inserted in a fixed sheath 11 to allow the longitudinal displacement of the column 4 between the normal position of the steering wheel 2 and its retracted position as indicated by double arrow F1 in Fig. 2.

The steering wheel 2 is made up of two parts 2a, 2b that are hinge mounted on each other in such a way that one 2a can be folded back on the other 2b. Preferably the part 2a of the steering wheel 2 is made up of a lower half rim and the part 2b of this wheel is made up of an upper half rim. The means of articulation of the two parts 2a, 2b of steering wheel 2 are shown with 2c in Figs. 3 to 6. Thus the design of the steering wheel 2 as two hinge-mounted parts 2a, 2b makes it possible to retract it.

Figure 2 shows the storage space 8 of the computer 9, which in fact is located at the level of the lower half of the steering wheel 2, i.e., at the level of the lower half rim 2a of same.

In addition, the instrument cluster 5 is arranged in such a way that it can be retracted into the instrument panel 1, e.g., by pivoting.

The instrument panel 1 also comprises additional equipment 12, such as a fax machine, that can be retracted into the instrument panel by a pivoting flap 13.

Means are provided for retracting the cockpit elements mentioned above and extracting the portable computer 9 from its storage space 8 to bring it into the usage position.

These means preferably comprise a motor to control each of the movements of these different elements and a single control element, such as a switch, that is provided to control these different movements, for example in a programmed form. More specifically, four electric motors 14 are provided, of which only two are shown in Fig. 2. One electric motor is for retracting the instrument cluster 5, one electric motor is for folding the lower half rim 2a of steering wheel 2 up against the upper half rim 2b, one motor is for retracting the steering wheel 2 and the steering column into the instrument panel 1 and one motor is for extracting the portable computer 9 from its storage space 8. The motors that can be seen in Fig. 2 are used, respectively, for retraction of the steering column (motor 14a) and for extracting of the portable computer 9 (motor 14b).

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The transformation of the vehicle instrument panel into a workstation has already been seen from the description above and will now be explained.

This transformation is carried out in five steps with the use of the four electric motors when the control element has been activated.

The first step shown in Fig. 3 consists of controlling the first and second electric motors 14 in such a way as to retract, respectively, the instrument cluster 5 as indicated by arrow F2 and to lift the lower half rim 2a of the steering wheel 2 around the hinging axes 2c in such a way as to fold it up against the upper half rim 2b, as indicated by arrow F3. Means may be provided for locking the two half rims 2a, 2b in their folded position with respect to each other.

The second step consists of controlling the third electric motor in such a way that the assembly made up by the folded half rims 2a, 2b and the hub 3 of the steering wheel 2 and the steering column 4 retract into the instrument panel 1 as indicated by arrow F4 in Fig. 4. In the third step, the shelf 9a on which the portable computer is integrated slides, under the control of the fourth electric motor, so ¹⁵ that it leaves the instrument panel 1 as indicated by arrow F5 in Figs. 4 and 5. The shelf 9a then arrives at a stop in a position where it is totally extended from its storage space 8 as shown in Fig. 5 and the shelf 9a swings slightly toward a horizontal position as shown by arrow F6 in Fig. 6 in such a way that the driver can use it as a support for the portable computer 9.

In the fifth step, shown in Fig. 7, the part forming the screen

9b of the portable computer 9 is lifted up against the raised lower half rim 2a of the steering wheel 2 and the driver can have use of a fax machine 12 after opening flap 13 that is hinge mounted on the instrument panel 1. Other peripheral equipment, such as a printer and/or a scanner can also be provided in this part of the instrument panel.

Figure 2 also shows the presence of an anti-torque locking means 15 for the portable computer 9.

The transformation of the instrument panel into a workstation is fast and easy since all that is needed is for the driver to press a switch that makes up the control element of the electrical motors to retract the instrument cluster, fold the lower half rim of the steering wheel up against the other one, retract especially the steering wheel into the instrument panel and extract the portable computer from its storage space.

CLAIMS

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1. Instrument panel for automotive vehicle, characterized in that it comprises, at the level of the cockpit, on one hand a storage space (8) for at least one element (9) such as a portable computer and, on the other, means (14) for retracting certain cockpit elements and extracting the element (9) from its storage space (8) to bring it into a position for use by the driver of the vehicle.

2. Instrument panel according to Claim 1, characterized in that the retractable cockpit elements are made up of the steering wheel (2)

and/or the instrument cluster (5).

3. Instrument panel according to Claim 1 or 2, characterized in that the steering wheel (2) is made up of two parts (2a, 2b) hinge mounted on each other in such a way that one (2a) can be folded up against the other (2b).

4. Instrument panel according to Claim 3, characterized in that locking means are provided for locking the two parts (2a, 2b) of the steering wheel (2) in their position with one folded up against the other.

5. Instrument panel according to Claim 3 or 4, characterized in that the storage space (8) is located at the level of the lower half of the steering wheel (2) which has a lower half rim (2a) making up one of the two hinge-mounted parts that is able to be folded up against the upper half rim (2b) that makes up the other hinged part.

6. Instrument panel according to one of the preceding claims, characterized in that the steering wheel (2) and the steering column (4) of the vehicle can retract into the instrument panel (1).

7. Instrument panel according to Claim 2, characterized in that the instrument cluster (5) retracts into the instrument panel (1), for example by pivoting.

8. Instrument panel according to one of the preceding claims, characterized in that element (9) mentioned above is combined with a sliding shelf (9a) that can be moved between a stowed position in the storage space (8) and the usage position of the element (9).

9. Instrument panel according to Claim 2, characterized in that

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the steering wheel (2), in retracted position, serves as a stop for one part (9b) of the element (9) mentioned above in its position when it is extended from its storage space (8).

10. Instrument panel according to one of the preceding claims, characterized in that it also comprises additional equipment such as a fax machine.

11. Instrument panel according to one of the preceding claims, characterized in that the movements of the different elements mentioned above are motorized and controlled using a single control element such as a switch.

12. Instrument panel according to Claim 11, characterized in that a control motor (14) is provided for each of the following movements comprising the retraction of the instrument cluster (5), i.e., the folding of one part (2a) of the steering wheel (2) up against the other, the retraction of the steering wheel (2) into the instrument panel (1) and the extraction of the element (9) mentioned above from its storage space (8).

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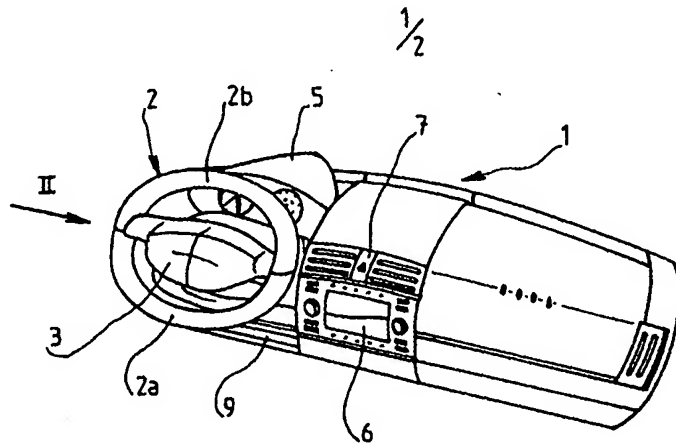


FIG. 1

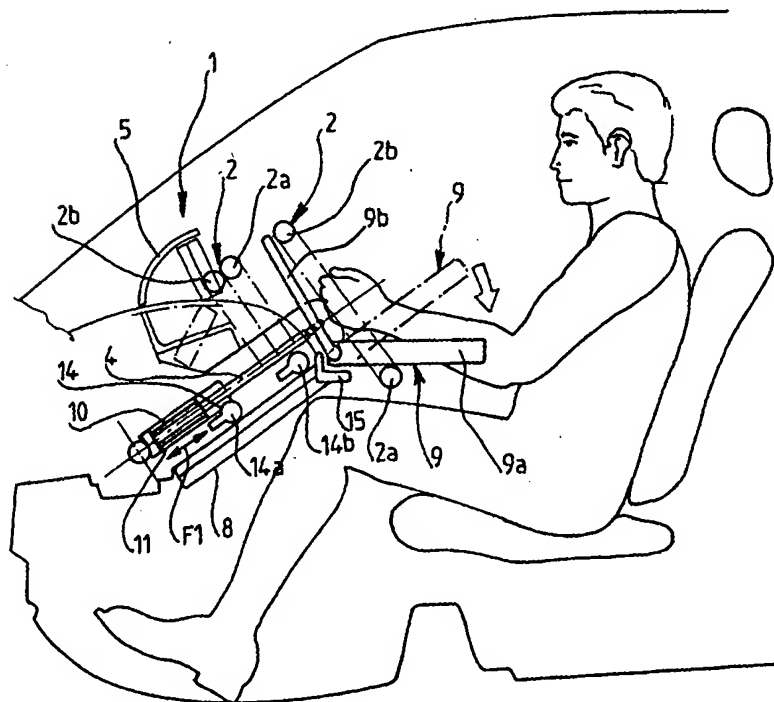


FIG. 2

